

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : AMADA CO LTD

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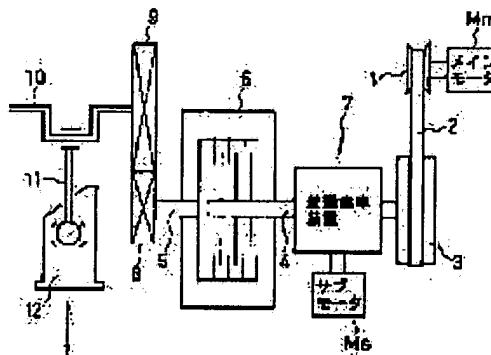
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KAMIYA AKIRA

(54) PRESS PROCESSING MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain an optimum slide motion by arbitrarily changing the slide motion corresponding to the content of the pressing process in the press processing machine.

SOLUTION: A differential gear 7 controlled by a sub motor Ms is installed between a flywheel 3 rotated by a main motor Mm and an input shaft 4 regulating the upwards/downwards movement of a slide 12, on which a punch is fixed. The reduction ratio of the flywheel 3 and the input shaft 4 varies by changing the rotation speed of the sub motor Ms in one stroke of the slide 12 so as to make it possible to change the slide motion.



LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] The press-working-of-sheet-metal machine characterized by having changed the reduction gear ratio of a flywheel and an input shaft, and enabling change of a slide motion of it by forming the differential gear mechanism controlled by the sub motor between the flywheel rotated by the main motor, and the input shaft which regulates the vertical motion of the slide with which punch is attached, and changing the rotational frequency of a sub motor between 1 strokes of the above-mentioned slide.

[Claim 2] The press-working-of-sheet-metal machine according to claim 1 constituted by the sun gear whose above-mentioned differential gear mechanism is the sun gear of an external gear, the starter ring which is the sun gear of an internal gear, and the pinion gear it is [pinion gear] an epicyclic gear.

[Claim 3] The press-working-of-sheet-metal machine according to claim 2 to which the reduction gear ratio of a flywheel and an input shaft is changed by controlling the rotational frequency of a sun gear by the sub motor.

[Claim 4] The press-working-of-sheet-metal machine according to claim 2 to which the reduction gear ratio of a flywheel and an input shaft is changed by controlling the rotational frequency of a starter ring by the sub motor.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the general drawing showing the operation gestalt of this invention.

[Drawing 2] It is drawing showing the 1st operation gestalt of this invention.

[Drawing 3] It is the detail drawing of the 1st operation gestalt of this invention.

[Drawing 4] It is drawing showing the relation of the gearing of the 1st operation gestalt of this invention.

[Drawing 5] It is operation explanatory drawing of the 1st operation gestalt of this invention.

[Drawing 6] It is drawing showing the relation between the rotational frequency of the sun gear of the 1st operation gestalt of this invention, and the rotational frequency of an input shaft 4.

[Drawing 7] It is drawing showing the slide motion by this invention.

[Drawing 8] It is drawing showing the 2nd operation gestalt of this invention.

[Drawing 9] It is the detail drawing of the 2nd operation gestalt of this invention.

[Drawing 10] It is drawing showing the relation of the gearing of the 2nd operation gestalt of this invention.

[Drawing 11] It is explanatory drawing of the conventional technology.

[Description of Notations]

1 Pulley

2 Belt

3 Flywheel

4 Input Shaft

5 Output Shaft

6 Clutch Brake

7 Differential Gear Mechanism

8 Pinion Gear

9 Main Gear

10 Crankshaft

11 Connecting Rod

12 Slide

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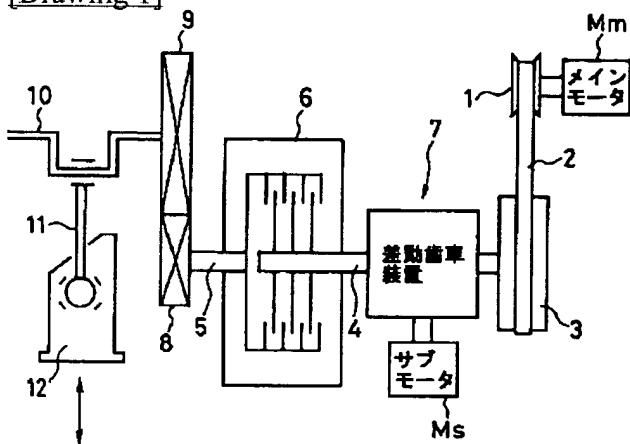
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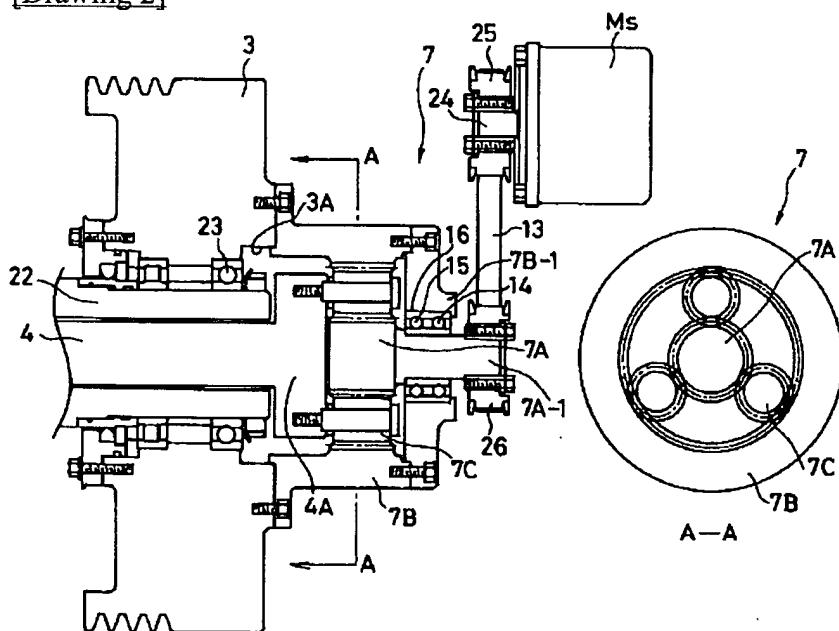
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DRAWINGS

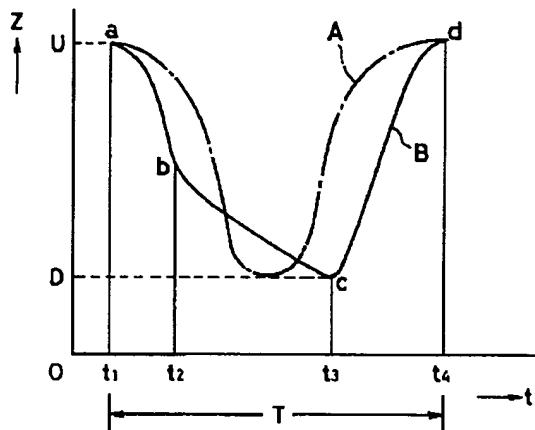
[Drawing 1]



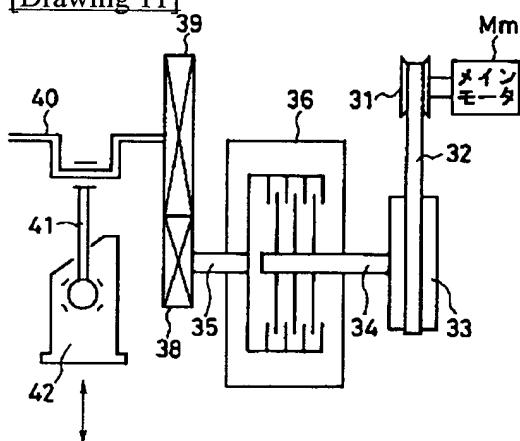
[Drawing 2]



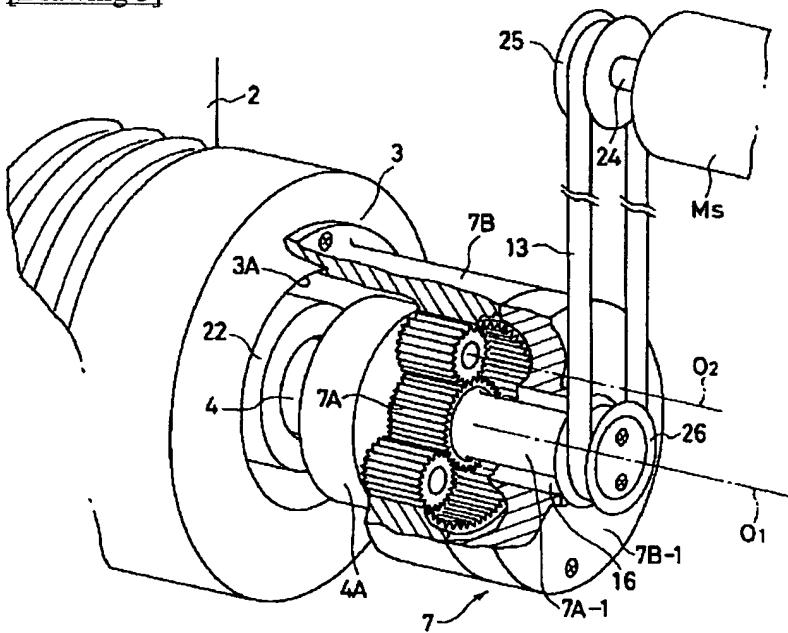
[Drawing 7]



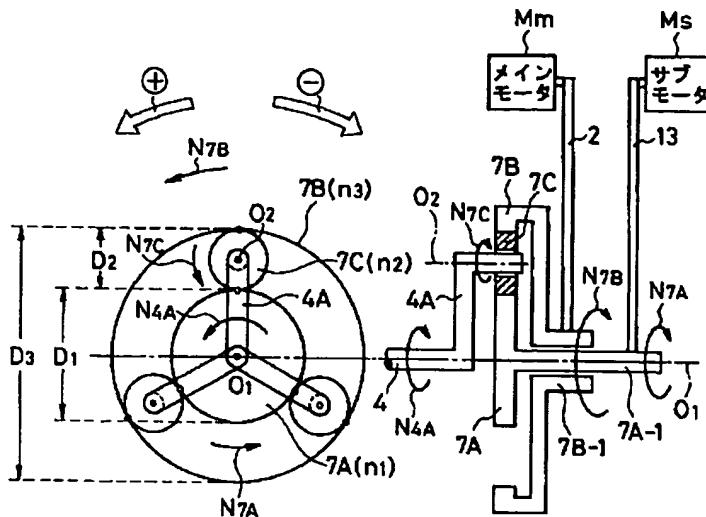
[Drawing 11]



[Drawing 3]



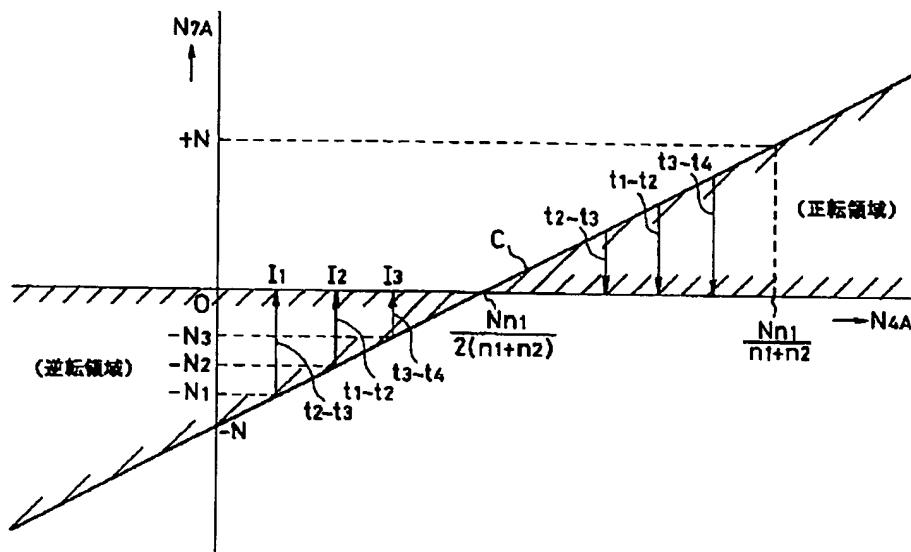
[Drawing 4]



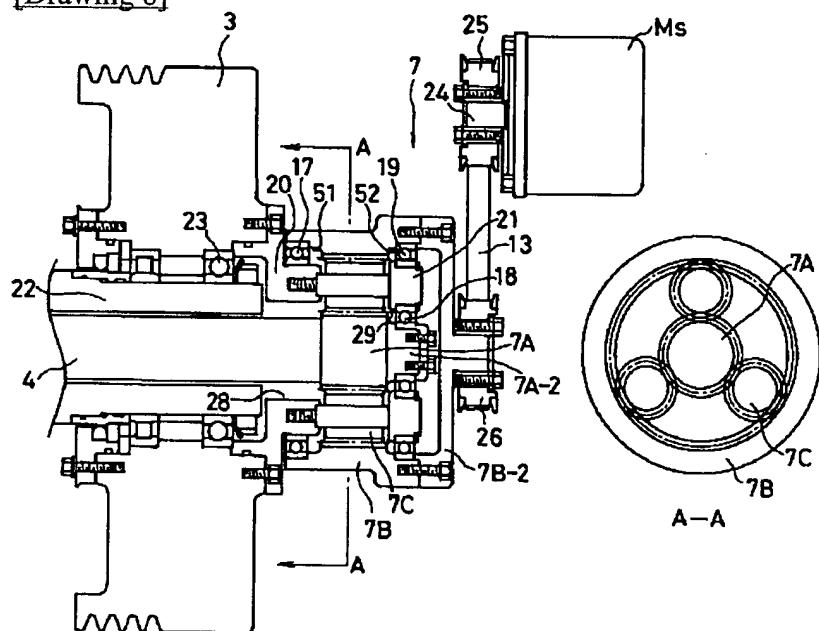
[Drawing 5]

	7A	(A) 7B	7C	4A
全体固定 (4Aと共に)	-1	-1	-1	-1
腕4A固定 (4Aに対して)	$-N+1$	$(N-1) \frac{n_1}{n_2}$ $\times \frac{n_2}{n_1+2n_2}$	$(N-1) \frac{n_1}{n_2}$	0
合成回転数	$-N$ (N_{7A})	$-1+(N-1) \frac{n_1}{n_1+2n_2}$ (N_{7B})	$-1+(N-1) \frac{n_1}{n_2}$ (N_{7C})	-1 (N_{4A})
	7A	(B) 7B	7C	4A
全体固定 (4Aと共に)	+1	+1	+1	+1
腕4A固定 (4Aに対して)	$-(N-1) \frac{n_1-2n_2}{n_1}$ $\times \frac{n_2}{n_1}$	$\frac{Nn_1}{n_1+2n_2}-1$	$\left(\frac{Nn_1}{n_1+2n_2}-1 \right)$ $\times \frac{n_1+2n_2}{n_2}$	0
合成回転数	$1-\frac{(N-1) n_1-2n_2}{n_1}$ (N_{7A})	$\frac{Nn_1}{n_1+2n_2}$ (N_{7B})	$1+\frac{(N-1) n_1-2n_2}{n_2}$ (N_{7C})	$+1$ (N_{4A})

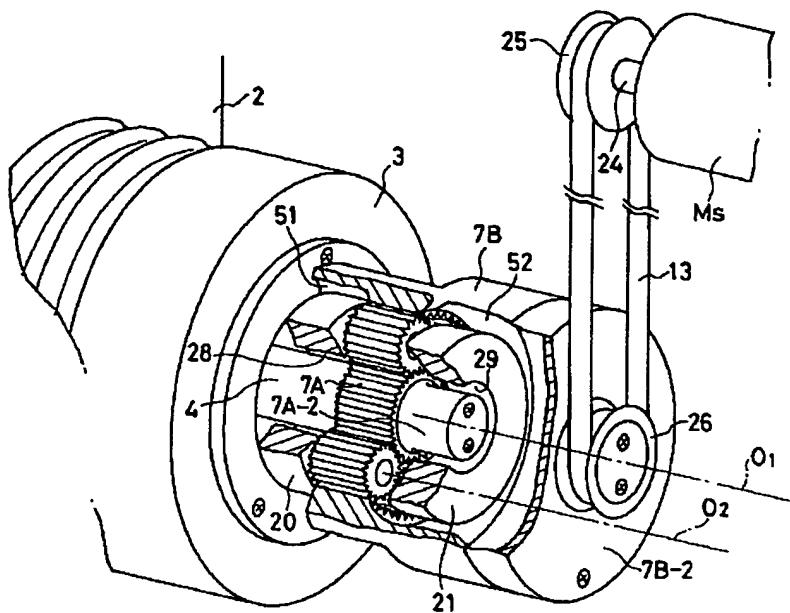
[Drawing 6]



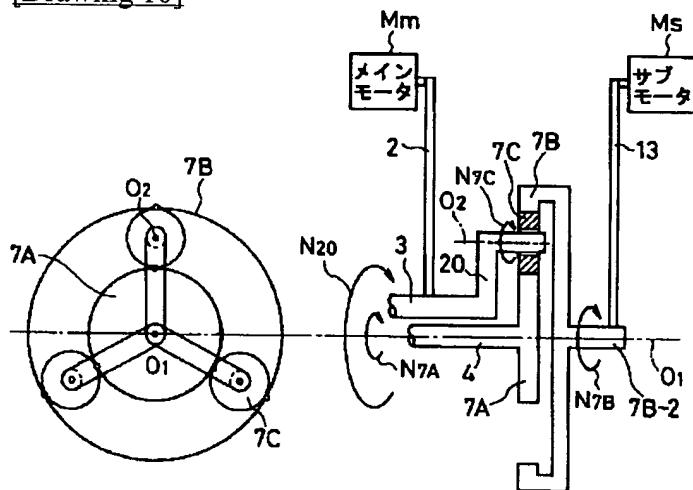
[Drawing 8]



[Drawing 9]



[Drawing 10]



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